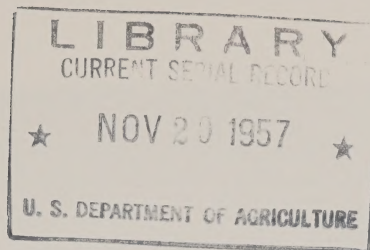


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U. S. DEPARTMENT OF AGRICULTURE  
Forest Service

FOREST PEST LEAFLET 17  
June 1957

## Jack-Pine Sawfly

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The jack-pine sawfly, *Neodiprion pratti banksianae* Roh., is a serious defoliator of jack pine in the Lake States. Injurious infestations periodically develop in natural stands and plantations in Minnesota, Wisconsin, Michigan, and in Canada from New Brunswick to Manitoba. This pest, like most of the other species of pine sawflies, is native only to North America. However, tree damage was not noted until the past few decades. During this period large, even-aged stands of jack pine have been established either through planting or natural seeding following fire. Such stands offer ideal conditions for the development of epidemic populations of the jack-pine sawfly.

### Host Preference

Jack pine is the only host that suffers damage on a comparatively large scale. However, red pine and Scotch pine may be damaged occasionally if they are growing with heavily infested jack pine.

### Feeding Habits and Host Damage

Damage to the trees occurs during the immature or larval stage of the sawfly. The "caterpillars" form colonies of 50 or more

individuals and feed gregariously throughout their development.

A striking feeding characteristic of this pest is its habit of devouring only the old needles. In a heavy infestation of 2 or more years' duration, the old foliage is generally completely consumed (fig. 1). Only the current year's needles remain in tuftlike bunches at the branch tips.

Up to the present time, the jack-pine sawfly has not caused any widespread tree mortality. Unquestionably, it has the potential for doing so, especially where infestations continue for 4 or more years. A more insidious aspect of sawfly damage is the gradual reduction in tree growth and vigor which can result in serious losses, especially when it occurs during periods of unfavorable environmental conditions, or in association with damage by other insects.

### Description

The eggs are about 1 millimeter long, white, and oval shaped. From 3 to 6 eggs are found on a single needle and about 20 to 30 egg-bearing needles may be found on a twig. The larvae are almost 1 inch long when mature; coloration is yellowish green with black stripes

<sup>1</sup> Maintained by the Forest Service, U. S. Department of Agriculture, in cooperation with the University of Minnesota, St. Paul 1, Minn.





Figure 1.—Feeding injury on jack pine. (Courtesy Canada Dept. Agr., For. Ins. Lab., Sault Ste. Marie, Ont.)

running along the abdomen. The head is shiny black (fig. 2). The cocoons are dark brown, papery, ovoid, and about three-eighths of an inch in length. The adults are also brown, about three-fifths of an inch in length, and flylike in general appearance with four shiny wings.

### Life History

The adults emerge from the cocoons in the duff under infested trees during September. The females begin laying eggs soon afterward. In doing so, they "saw" little egg pockets into the edges of

the current year's needles. The eggs overwinter, and hatch during the following May. The larval stage is generally completed sometime during June. Mature larvae drop to the ground, crawl into the duff, and spin their cocoons.

### Natural Control

Natural control of the jack-pine sawfly is generally brought about by biotic enemies before widespread tree damage occurs. The most important natural enemies are several species of hymenopterous and dip-terous parasites of the sawfly larvae. The larvae are also subject to an



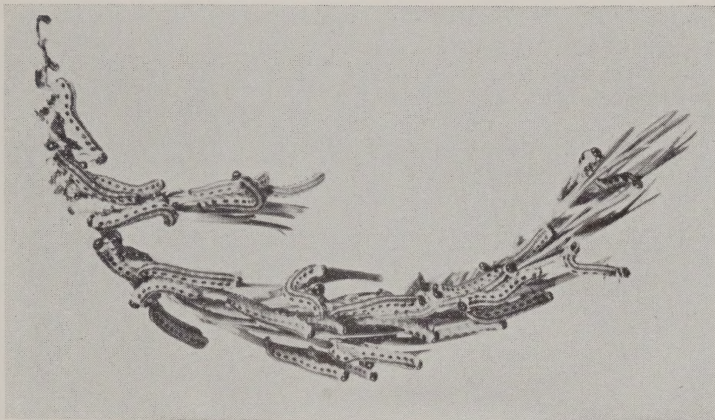


Figure 2.—Mature larvae of the jack-pine sawfly. (Courtesy Canada Dept. Agr., For. Ins. Lab., Sault Ste. Marie, Ont.)

epidemic disease caused by a virus. Adverse climatic conditions, especially late spring frosts, can also exert an effective control on epidemic populations.

### Preventive Measures

It is probable that the removal of open-growing, widely spaced jack pines will make conditions somewhat less favorable for the sawfly. However, infestations do occasionally develop in closed plantations. The establishment of a mixture of tree species, rather than pure jack pine stands, also may reduce the likelihood of severe sawfly epidemics. So far, the effectiveness of these practices has not been demonstrated experimentally.

### Insecticidal Control

Direct control measures against the jack-pine sawfly are usually unnecessary because of the effectiveness of natural factors. However, where infestations threaten tree survival, insecticidal control can be utilized.

An effective and economical insecticide to use on small acreages is

a 6-percent DDT formulation for application with a knapsack or mist blower. Since there is danger of injuring the pine foliage with the oil solvent used in solutions, emulsion concentrates and wettable powders are the safest forms of application. Larger stands can be sprayed by airplane with a DDT-in-oil solution at the rate of 1 pound of DDT to a gallon of finished spray per acre.

The insecticide should be applied in the spring soon after the young larvae begin feeding. The actual date will vary from early May to early June depending on the season. It is important that spraying be delayed until the larvae are observed feeding on the foliage, as the recommended control is effective only against the larvae.

**CAUTION:** DDT is poisonous. Store it in a plainly labeled container away from all food products. In handling this chemical follow directions and heed precautions given on the container. In forest spraying, avoid overdosing, especially in the vicinity of streams and over ponds and lakes.

## References

- THE TAXONOMY AND EVOLUTION OF THE SAWFLY GENUS NEODIPRION. HERBERT H. ROSS. Forest Sci. 1(3): 196-209, illus. 1955.
- THE JACK-PINE SAWFLY. ROY D. SHENEFELT and DANIEL M. BENJAMIN. Wis. Univ. Agr. Ext. Serv., Col. Agr., Cir. 500, pp. 30-31, illus. 1955.
- SOME NATIVE SAWFLIES OF THE GENUS NEODIPRION ATTACKING PINES IN EASTERN CANADA. C. E. ATWOOD and O. PECK. Can. Jour. Research 21: 109-144, illus. 1943.
- THE PINE SAWFLIES. *In* PRINCIPLES OF FOREST ENTOMOLOGY. SAMUEL A. GRAHAM. pp. 192-194, illus. 1939.